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Report

1. Experiment:

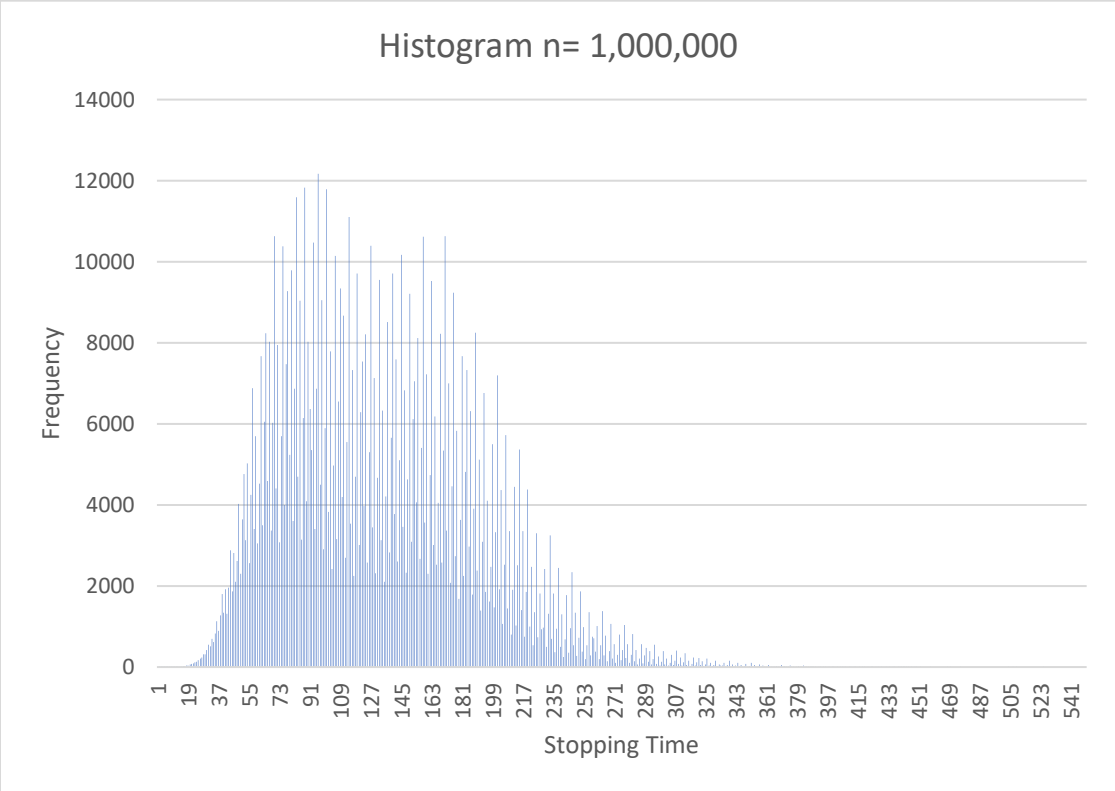
value of n: 1,000,000

number of threads: 5, 10, 15, 20, 25, 30

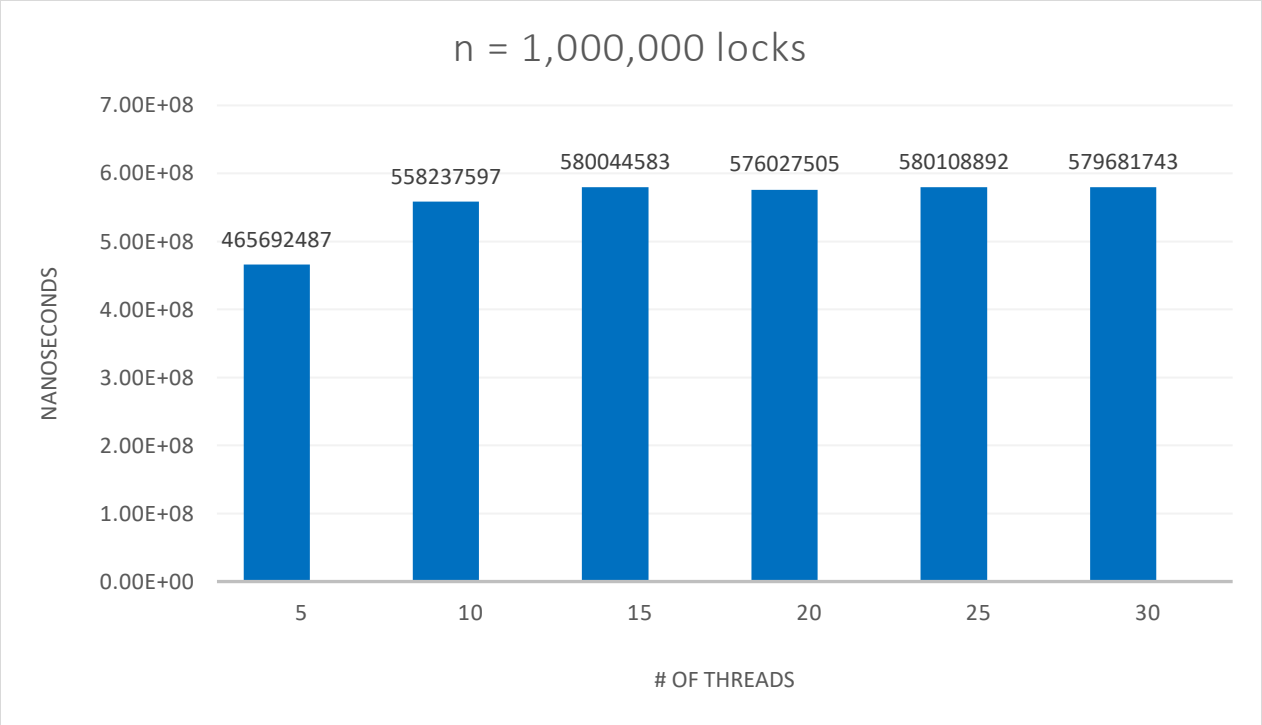
2. This experiment was conducted on the SSH Linux server.

Both cases (lock and nolock) consists of 6 thread tests taken by the average of 10 runs each.

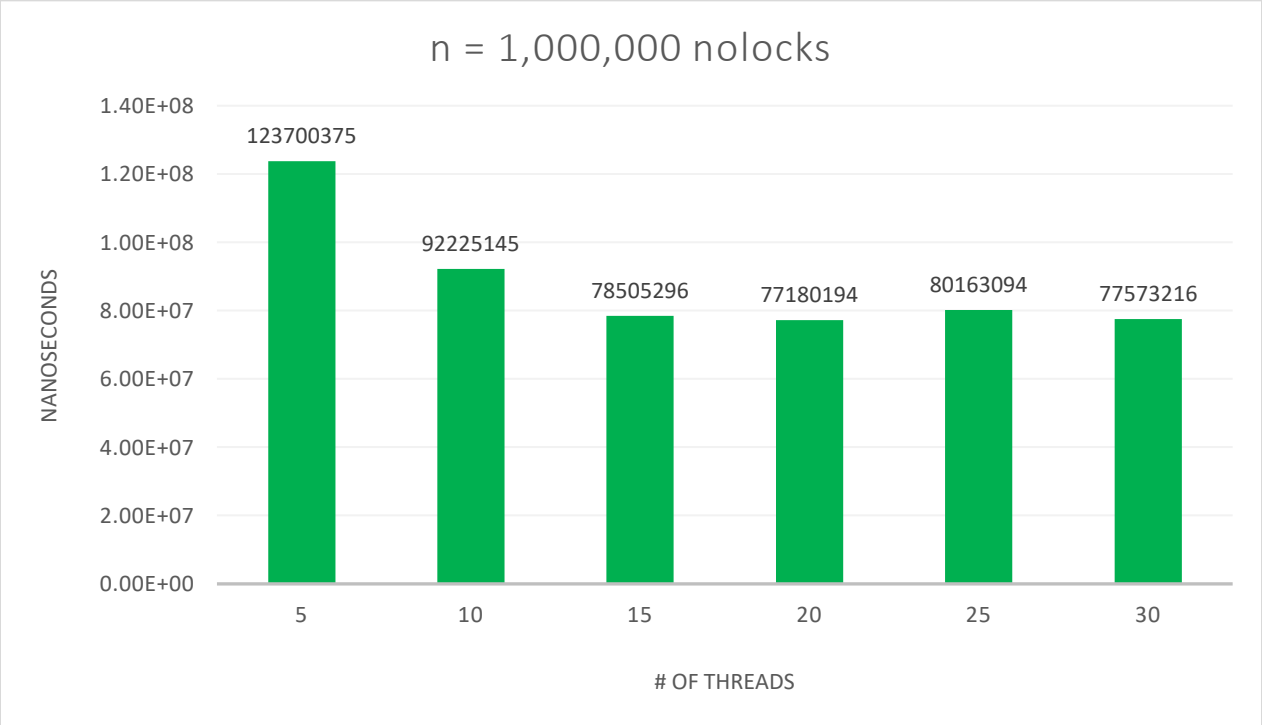
3. Histogram:



Performance with Locks



Performance without Locks



4. Analysis & Conclusion

In respect to the performance charts above relating to locks vs nolocks, it is evident that: as the number of threads increases with the use of locks- the graph of performance becomes more like a logorithmic function with the horizontal asymptote slightly above 0.580 seconds and as the number of threads increases without locks- the graph of performance becomes more like a negative logorithmic function with the horizontal asymptote slightly below 0.077 seconds.

Based on this analysis, as the number of threads increases, the advantages of multi-threading become more conclusive. In addition, the performance time for without locks are at its highest in lower thread tests (about 0.124 sec at 5 threads), but it is still much faster than the lowest time for with locks (about 0.466 sec at 5 threads), a 27% improvement in time performance with an N of 1,000,000.